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Gymnocladus C.E.Parkinson (Leguminosae-Caesalpinioideae), a new generic record from Thailand

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ABSTRACT. *Gymnocladus burmanicus*, a new generic record for Thailand, has been collected in Kanchanaburi Province. The species is described and illustrated and an emended key to the Caesalpinioideae for the Flora of Thailand is presented.

During a collecting trip to Kanchanaburi Province, the first author came across a Caesalpinioid tree that did not key out in the Flora of Thailand. Further studies revealed that it belonged to the genus *Gymnocladus*, not previously recorded from Thailand.

Gymnocladus is a small genus of ancient Caesalpinioids with a disjunct distribution. One species occurs in N. America, while four species are present in Southeast Asia. *Gymnocladus burmanicus* was first described from the Dawna Hills in Myanmar, not far from Kanchanaburi Province.

GYMNOCLADUS

Lamark, Enc. Méth. Bot. 1: 733. 1785; Benth. & Hook.f., Gen. Pl. 1: 568. 1865; Taubert in Engl. & Prantl, Nat, Pflanzenfam. 3 (3): 169. 1892; Lee, J. Arn. Arb. 57: 91. 1976; Larsen, Larsen & Vidal in Fl. C.L.V. 18: 73. 1980.

Unarmed trees. *Leaves* spirally arranged, bipinnate; leaflets alternate. *Inflorescence* in spikes or panicles. *Flowers* dioecious or polygamous; hypanthium tubular. *Sepals* 5, open in bud. *Petals* 4–5, subequal. *Stamens* 10, filaments free, unequal; anthers opening by longitudinal slits. *Ovary* rudimentary in the male flowers, sessile or subsessile in the female flowers; ovules few to many; style straight: stigma 2-lobed. *Fruit* an oblong dehiscent pod with coriaceous valves. *Seeds* transverse.

Five species, one species in Thailand.

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Gymnocladus burmanicus C.E.Parkinson, Kew Bull. 1928: 333. 1928. Type: Myanmar, Tenasserim, Dawna Hills, *Parkinson* 5229 (holotype K). Figure 1–3.

Deciduous tree up to 8 (–17) m, polygamous, some with staminate flowers others with bisexual flowers. *Bark* scaly, brownish grey, scales small with elliptic lenticels. *Young branches* purplish red and glaucous, sparsely pubescent. *Leaves* to 50 by 35 cm, including 9–12 cm long petiole; rachis 17–20 cm long; pinnae 6–8, each 12–30 cm long including the short petiolule. *Petiole* and petiolule pulvinate, petiole and rachis furrowed. *Leaflets* 7–13, alternate, with tooth-like bracts, lanceolate, 3.5–7 by 1.5–2 cm, apex acute, base oblique. *New leaves* purplish-red on upper surface, lower surface pale purplish and glaucous. *Flowers* produced immediately after the new leaves have appeared. *Staminate flowers* in short, terminal and lateral racemes on the new shoots, usually more numerous than the bisexual flowers. *Inflorescence* with 20–35 flowers, spirally arranged, som etimes with short cymes comprising 2–4 flowers scattered in the inflorescence. *Buds* fusiform. *Pedicels* ca. 1 mm long. *Hypanthium* narrowly cup-shaped, tapering towards base, 8–9 mm long, pubescent outside, inside pale green with adpressed hairs. *Sepals* linear with acute apex, 5–7 by ca. 1 mm, pubescent, slightly ridged along the midvein, light greenish-purple, with 1 gland at the base. *Petals* 5, obovate, rounded to acute, 6–8 by 3 mm, purple, darker along the midvein. *Stamens* 10 in 2 whorls, 5 with filaments ca. 3 mm long, curved inwards and touching at the centre, the other 5 with filaments ca. 2 mm long, also incurved but not touching; reduced pistil ca. 1 mm long. *Inflorescence* of bisexual flowers terminal on new shoots, ca. 3.5 cm long, with 4–6 flowers opposite, decussate, 1.8–2 cm diam. *Pedicels* ca. 1 cm long. *Pistil* falcate; ovary pale green, style paler; stigma capitate. *Pod* glossy brownish-red, oblong 9–10 by 3.5–4.5 cm with mucronate apex the ripe pods with a strong smell of bananas (also mentioned by Parkinson in the protologue), dehiscencing along 1 suture. *Endocarp* pulpy, with transverse white fibres. *Fruiting pedicel* 2–2.5 cm long. *Aril* yellow, transparent, ca. 1 cm long. *Seeds* 3–4, short-cylindric or conical.

Thailand.— SOUTH-WESTERN: Kanchanaburi [Thong Pha Phum, Ban E-Tong, 14° 40.632- N, 98° 22.625-, *Veesommai* 2000 (AAU, BKF, BK, Suan Luang Rama IX Herbarium).

Distribution.— Myanmar.

Ecology.— Open dry forest, 900 m. Flowering December-January. Fruiting March-October.

Vernacular.— Daeng dara (แดงดารา).

Note.— Since the publication of the Leguminosae-Caesalpinioideae in Flora of Thailand (Larsen et al.1984) two new genera have been found in Thailand, namely *Gleditsia* (Larsen, 1989) and now *Gymnocladus*. We suggest the following addition to the key in the Flora of Thailand, page 1, last line:

4. Leaves bipinnate
   4* Polygamous trees
      4** With spines **20. Gleditsia**
      4** Unarmed **21. Gymnocladus**
   4* Bisexual trees or stragglers
4. Leaf-rachis very short.....

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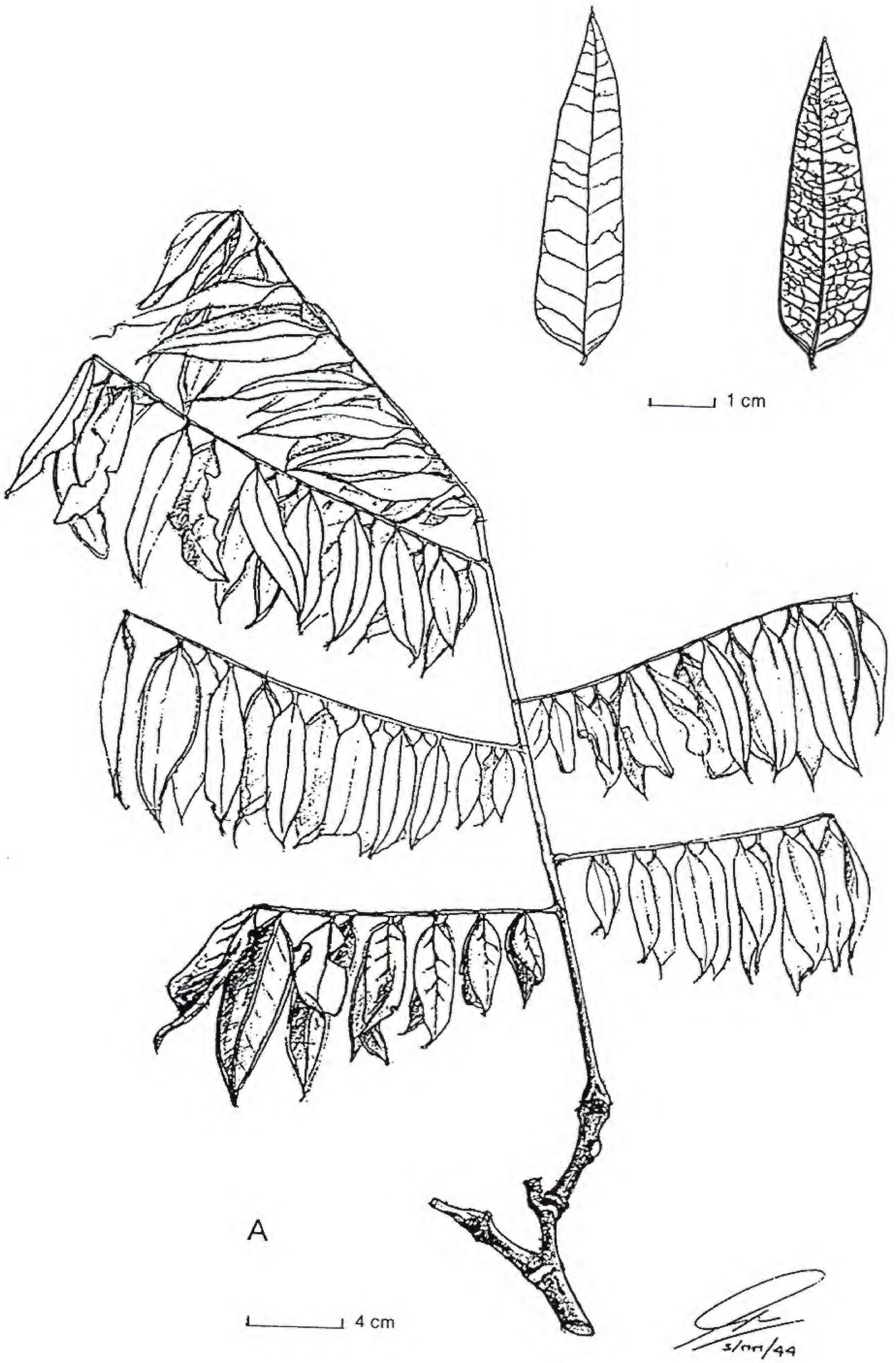

Figure 1. *Gymnocladus burmanicus* C.E.Parkinson: Branch and leaflets. Drawn from *Veesommai* 2000.

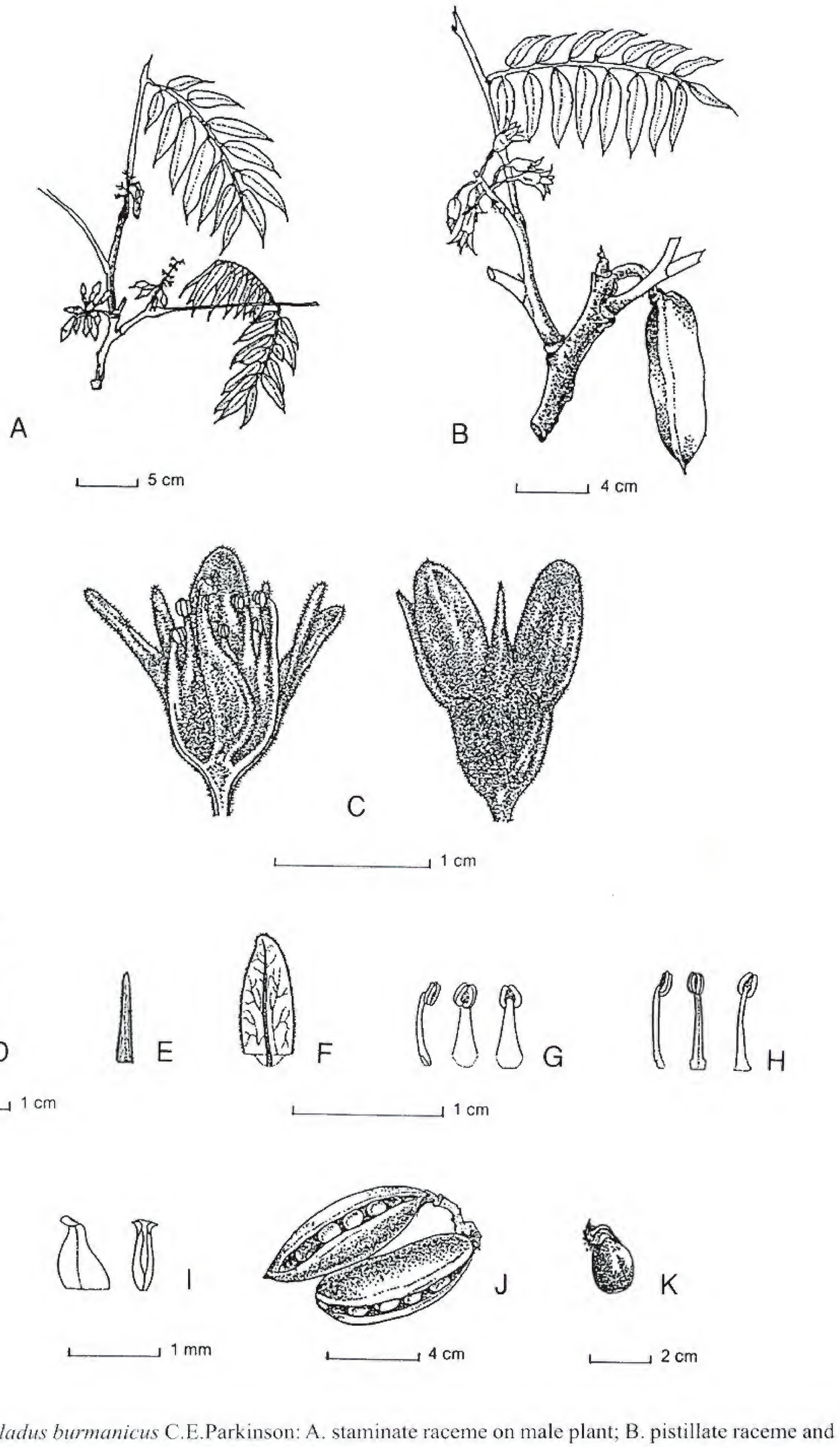

Figure 2. *Gymnocladus burmanicus* C.E.Parkinson: A. staminate raceme on male plant; B. pistillate raceme and legume on the female plant; C. complete flower, longitudinal section, outside and inside; D. staminate flower, longitudinal section with minute sterile pistil at base; E. sepal, F. petal; G. stamen with short filament, side, front and back view; H. stament with long filament, side, front and back view; I. sterile pistil (of staminate flower), front and lateral view; J. legume, K. seed. All from *Veesommai* 2000.

Figure 3. *Gymnocladus burmanicus* C.E.Parkinson: A. flowering branch; B. complete flower; C. habit; D. fruit; E. seed.